

Case-Control Study of Sporadic *Escherichia coli* O157:H7 Infections in 5 FoodNet Sites (Calif., Conn., GA., Minn., Ore.)

Kassenborg H, Hedberg C, Evans M, Chin G, Fiorentino T, Vugia D, Bardsley M, Slutsker L, Griffin P.

Objective: A case-control study was conducted at 5 FoodNet sites (CA, CT, GA, MN, OR) from March 1, 1996 to April 30, 1997 to identify risk factors for sporadic *Escherichia coli* O157:H7 infections and to explain *E. coli* O157:H7 infection incidence differences between sites.

Methods: Cases were identified via active laboratory-based surveillance. Data on 200 non-outbreak cases and 380 age and telephone-exchange matched controls were obtained by telephone using a standardized questionnaire. Cases and controls were interviewed about the same calendar period. Respondents were questioned about consumption of specific food items, activities and exposure to other potential risk factors in the 5 days before onset of a case's diarrhea. Additionally, cases and controls were asked about predisposing medical conditions and antibiotic and immune suppressive medication use 4 weeks before the case's diarrhea onset.

Results: For all sites combined, illness was associated with eating pink hamburgers or pink ground beef (matched odds ratio [MOR], 3.5; confidence interval [CI], 1.7,7.3), and living on or visiting a farm (MOR, 2.8; CI, 1.7-4.6). Additionally, among non-farm residents cases were more likely than controls to have exposure to farm cows (MOR, 5.8; CI, 2.4 14.7). Among persons who consumed hamburgers, cases were more likely than controls to eat pink hamburgers both at home (unmatched OR [UOR], 3.5; CI, 1.6,7.7) and at a restaurant (UOR, 7.2; CI, 2.4, 21). Among persons who ate ground beef or hamburgers, illness was associated with eating privately processed ground beef or hamburgers in the home (MOR, 11; CI, 1.4, 89) and eating a hamburger at a restaurant that is not part of a major fast-food chain (MOR, 10; CI, 1.3,82). Risk factors were analyzed by site, but there were not enough cases in CT, GA or CA to produce statistically meaningful results for most analyses. Trends for individual sites were consistent with the combined analysis. However, few OR cases reported eating pink hamburger at home and none of the cases in CT, CA or GA reported exposure to farm cows.

Conclusion: The results indicate that differences in exposure to *E. coli* O157:H7 on farms and through locally processed ground beef, may contribute to the regional variability of annual incidence of *E. coli* O157:H7 in the 5 FoodNet sites. Consumption of pink hamburgers at home or in restaurants is a risk factor for *E. coli* O157:H7 infection.

Suggested citation:

Kassenborg H, Hedberg C, Evans M, Chin G, Fiorentino T, Vugia D, Bardsley M, Slutsker L, Griffin P. Case-Control Study of Sporadic *Escherichia coli* O157:H7 Infections in 5 FoodNet Sites (Calif., Conn., GA., Minn., Ore.) 1st International Conference on Emerging Infectious Diseases. Atlanta, GA, March 1998.

